

REMARKS

The Office Action mailed September 8, 2005, has been received and reviewed. Claims 1 through 25 are currently pending in the application. Claims 1, 6-13, 15, 17-20, 24, and 25 stand rejected. Claims 2-5, 14, 16, and 21-23 have been objected to as being dependent upon rejected base claims, but the indication of allowable subject matter in such claims is noted with appreciation. Applicants have amended claims 1-6, 12, 15, 17, 20 and 22, added new claims 26 through 29, and respectfully request reconsideration of the application as amended herein.

Supplemental Information Disclosure Statement

Please note that a Supplemental Information Disclosure Statement was filed herein on August 29, 2005, and that no copy of the PTO/SB/08 was returned with the outstanding Office Action. Applicants respectfully request that the information cited on the PTO/SB/08 be made of record herein. For the sake of convenience, a second copy of the August 29, 2005, Supplemental Information Disclosure Statement, PTO/SB/08, and USPTO date-stamped postcard are enclosed herewith. It is respectfully requested that an initialed copy of the PTO/SB/08 evidencing consideration of the cited references be returned to the undersigned attorney.

Preliminary Amendment

Applicants' undersigned attorney notes the filing herein of a Preliminary Amendment on January 12, 2004, which filing was not acknowledged in the outstanding Office Action. Should the Preliminary Amendment have failed for some reason to have been entered in the Office file, Applicants' undersigned attorney will be happy to have a true copy thereof hand-delivered to the Examiner.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on U.S. Patent No. 6,713,876 B1 to Vittu et al. in view of U.S. Patent No. 6,455,927 B1 to Glenn et al.

Claims 1, 6, 7, and 9-11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Vittu et al. (U.S. Patent No. 6,713,876 B1) in view of Glenn et al. (U.S. Patent No.

6,455,927 B1). Applicants respectfully traverse this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

The 35 U.S.C. § 103(a) obviousness rejections of claims 1, 6, 7, and 9-11 are improper because Vittu and Glenn fail to teach each and every element of claims 1, 6, 7, and 9-11.

Vittu teaches a process for fabricating an optical semiconductor package in which an electrical connection support plate 2 has a through passage 5. A first semiconductor component 4 is placed behind the support plate and lying opposite the through-passage. A second semiconductor component 13 has a rear face fixed to the front face 20 of the first component 4 through the through-passage 5 of the support plate 2. External electrical connection 25 is located on an exposed part of the support plate.

Glenn teaches a micromirror device package having a micromirror device chip 112. A window 152 is mounted directly to an upper surface 112U of the micromirror device chip 112. The lower surface 112L of the micromirror device chip 112 is attached to an upper, e.g., first, surface 1102U of substrate 1102, for example, with adhesive 1130. (Col. 11, lines 43-45)

Claim 1, as amended herein, recites a "method for assembling an electronic device package comprising: forming a package shell having an aperture formed in a first surface thereof and a second-side cavity formed in a second surface thereof and in communication with the aperture, the second-side cavity having an outside perimeter that is larger than an outside perimeter of the aperture to form a cavity first surface in the second-side cavity; forming at least one solder pad on at least the second surface of the package shell; mounting an optically interactive microelectronic device having an active surface within the second-side cavity such that at least a portion of the active surface is exposed through the aperture and the second surface

of the package shell protrudes beyond the optically interactive microelectronic device; depositing a transparent encapsulant within the aperture to cover the at least a portion of the active surface exposed therethrough; and covering the aperture with a transparent lid.”

Neither Vittu nor Glenn teach or suggest mounting an optically interactive microelectronic device within a second-side cavity such that the second surface of a package shell protrudes beyond the optically interactive microelectronic device. The first semiconductor component 4 of Vittu protrudes beyond the rear face 6 of the electrical connection support plate 2. (see FIG. 4) The micromirror device chip 112 of Glenn is not mounted within a cavity, rather is attached to an upper, e.g., first, surface 1102U of a substrate 1102.

Accordingly, the combination of Vittu and Glenn fails to teach or suggest each and every element of claim 1. Therefore, it is respectfully submitted that the rejection to claim 1 should be withdrawn.

The nonobviousness of independent claim 1 precludes a rejection of claims 6, 7, and 9-11 which depend therefrom because a dependent claim is obvious only if the independent claim from which it depends is obvious. *See In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988), *see also* MPEP § 2143.03. Therefore, the Applicants request that the Examiner withdraw the 35 U.S.C. § 103(a) obviousness rejection to claims 6, 7, and 9-11 which depend from claim 1.

Claim 6 is additionally allowable because neither Vittu nor Glenn teach or suggest forming a conductive element on the active surface of an optically interactive microelectronic device, and bonding the conductive element to a terminal pad on a cavity first surface. Rather, Vittu teaches an optical component 13 with electrical connection wires 17 connecting the front face thereof with the front face of the support plate.

Claim 7 is additionally allowable because neither Vittu nor Glenn teach or suggest forming a conductive bump on the active surface of the optically interactive microelectronic device. Rather, Vittu teaches an optical component 13 with electrical connection wires 17 connecting the front face thereof with the front face of the support plate. Glenn teaches bond wires 1106A as an electrically conductive pathway between bond pads 116 of the micromirror device chip 112 and interconnection ball 1114A.

Obviousness Rejection Based on U.S. Patent No. 6,713,876 B1 to Vittu et al. and U.S. Patent No. 6,455,927 B1 to Glenn et al. as applied to claims 1 and 7 above and further in view of U.S. Patent No. 5,687,474 to Hamzehdoost et al.

Claim 8 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Vittu et al. (U.S. Patent No. 6,713,876 B1) and Glenn et al. (U.S. Patent No. 6,455,927 B1) as applied to claims 1 and 7 above and further in view of Hamzehdoost et al. (U.S. Patent No. 5,687,474). Applicants respectfully traverse this rejection, as hereinafter set forth.

Claim 8 is allowable, among other reasons, as depending from claim 1 which should be allowed.

Obviousness Rejection Based on U.S. Patent No. 6,713,876 B1 to Vittu et al. in view of U.S. Patent No. 6,455,927 B1 to Glenn et al. and U.S. Patent No. 5,357,056 to Nagano

Claims 12, 13, 17, 18, 20, 24, and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Vittu et al. (U.S. Patent No. 6,713,876 B1) in view of Glenn et al. (U.S. Patent No. 6,455,927 B1) and Nagano (U.S. Patent No. 5,357,056). Applicants respectfully traverse this rejection, as hereinafter set forth.

Applicants assert that any combination of the Vittu, Glenn and Nagano references do not establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the presently claimed inventions of amended independent claims 12 because any combination of the cited prior art, at the very least, fails to teach or suggest all of the claim limitations of the presently claimed invention.

The teachings of Vittu and Glenn have been summarized above.

Nagano teaches a chip carrier for an optical device having a carrier body of insulating material, an external electrode, a glass cover fixed on one end of the carrier body, and a metal cover fixed on the other end of the carrier body. The optical device is connected at an electrode thereof to an inside end of the external electrode by a flip-chip bonding.

Claim 12, as amended herein, recites a “method for assembling an electronic device package comprising: forming a package shell having an aperture formed in a first surface thereof and a second-side cavity formed in a second surface thereof and in communication with the

aperture, the second-side cavity having an outside perimeter that is larger than an outside perimeter of the aperture to form a cavity first surface in the second-side cavity; forming a ledge surface in the second surface of the package shell around the second-side cavity; forming at least one solder pad on the package shell at least onto the second surface of the package shell; covering the aperture with a transparent lid; mounting an optically interactive microelectronic device having an active surface within the second-side cavity such that at least a portion of the active surface is exposed through the aperture and the second surface of the package shell protrudes beyond the optically interactive microelectronic device; and covering the second-side cavity with a backing cap.”

Neither Vittu, Glenn, nor Nagano teach or suggest mounting an optically interactive microelectronic device within a second-side cavity such that the second surface of the package shell protrudes beyond the optically interactive microelectronic device. The first semiconductor component 4 of Vittu protrudes beyond the rear face 6 of the electrical connection support plate 2. (see FIG. 4) The micromirror device chip 112 of Glenn is not mounted within a cavity, rather is attached to an upper, e.g., first, surface 1102U of a substrate 1102. The optical device of Nagano is not mounted within a cavity.

Therefore, the combination of the cited prior art of Vittu, Glenn, and Nagano does not establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the presently claimed invention of amended independent claim 12. Therefore, presently amended independent claim 12 as well as dependent claims 13, 17, 18, 20, 24, and 25 therefrom are allowable.

Claim 17 is additionally allowable because neither Vittu, Glenn nor Nagano teach or suggest forming a conductive element on the active surface of an optically interactive microelectronic device, and bonding the conductive element to a terminal pad on a cavity first surface. Rather, Vittu teaches an optical component 13 with electrical connection wires 17 connecting the front face thereof with the front face of the support plate. The optical device of Nagano is connected to an electrode by flip-chip bonding.

Claim 18 is additionally allowable because neither Vittu, Glenn nor Nagano teach or suggest forming a conductive bump on the active surface of the optically interactive microelectronic device. Rather, Vittu teaches an optical component 13 with electrical connection

wires 17 connecting the front face thereof with the front face of the support plate. Glenn teaches bond wires 1106A as an electrically conductive pathway between bond pads 116 of the micromirror device chip 112 and interconnection ball 1114A.

Obviousness Rejection Based on U.S. Patent No. 6,713,876 B1 to Vittu et al., U.S. Patent No. 6,455,927 B1 to Glenn et al., and U.S. Patent No. 5,357,056 to Nagano as applied to claim 12 above and further in view of U.S. Patent Publication No. 2003/0111441 A1 to Jerominek et al.

Claim 15 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Vittu et al. (U.S. Patent No. 6,713,876 B1), Glenn et al. (U.S. Patent No. 6,455,927 B1), and Nagano (U.S. Patent No. 5,357,056) as applied to claim 12 above and further in view of Jerominek et al. (U.S. Patent Publication No. 2003/0111441 A1). Applicants respectfully traverse this rejection, as hereinafter set forth.

Claim 15 is allowable, among other reasons, as depending from claim 12 which should be allowed.

Obviousness Rejection Based on U.S. Patent No. 6,713,876 B1 to Vittu et al., U.S. Patent No. 6,455,927 B1 to Glenn et al., and U.S. Patent No. 5,357,056 to Nagano as applied to claims 12, 17, and 18 above and further in view of U.S. Patent No. 5,687,474 to Hamzehdoost et al.

Claim 19 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Vittu et al. (U.S. Patent No. 6,713,876 B1), Glenn et al. (U.S. Patent No. 6,455,927 B1), and Nagano (U.S. Patent No. 5,357,056) as applied to claims 12, 17, and 18 above and further in view of Hamzehdoost et al. (U.S. Patent No. 5,687,474). Applicants respectfully traverse this rejection, as hereinafter set forth.

Claim 19 is allowable, among other reasons, as depending from claim 12 which should be allowed.

Objections to Claims/Allowable Subject Matter

Claims 2-5, 14, 16, and 21-23 stand objected to as being dependent upon rejected base claims, but are indicated to contain allowable subject matter and would be allowable if placed in appropriate independent form. New claim 26 has been written to include all of the limitations of claim 2 and as well as the limitations of base claim 1 prior to the present amendments thereto. Claim 27 corresponds to claim 3 and depends from claim 26. Claim 28 corresponds to claim 4 and depends from claim 27. Claim 29 corresponds to claim 5 and depends from claim 28.

ENTRY OF AMENDMENTS

The amendments to claims 1-6, 12, 15, 17, 20 and 22 above should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add any new matter to the application.

CONCLUSION

Claims 1 through 29 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicants' undersigned attorney.

Respectfully submitted,



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